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Vital Statistics

Born: January 25, 1943, USA (US citizen)
Married: To Judy, August 6, 1966
Children: One son, James David Gilsinn

Education

Ph.D. (Mathematics), Georgetown University, 1969.
M.S. (Mathematics), Rutgers-The State University, New Brunswick, 1966.
B.S. (Mathematics), Georgetown University, 1964.

Professional Experience

Information Technology Laboratory,
National Institute of Standards and Technology (NIST),
formerly the National Bureau of Standards (NBS), Gaithersburg, MD:
Mathematician, Mathematical and Computational Sciences Division, 2000-present.
Manufacturing Engineering Laboratory
National Institute of Standards and Technology (NIST), Gaithersburg, MD:
Mathematician, Manufacturing Metrology Division (formerly the Automated Production Technology Division), 1991-2000;

Mathematician, Precision Engineering Division, 1978-1991.
Institute for Computer Science and Technology (currently Information Technology Laboratory)
      National Bureau of Standards (currently NIST), Gaithersburg, MD:
      Mathematician, 1974-1978.
Institute for Applied Technology,
      National Bureau of Standards (currently NIST), Gaithersburg, MD:
      Mathematician, Technical Analysis Division, 1970-1974.
Melpar Inc., McLean, VA:
      Senior Mathematician, 1969-1970.

Research Interests

Nonlinear Dynamics
Numerical analysis, computational science
Optimization
3D Image Processing

Professional Activities

Society for Industrial and Applied Mathematics (SIAM),
Sigma Xi, and Pi Mu Epsilon, National Honorary Mathematics Fraternity.

Other Assignments:

Session Chair, Periodic Orbits in High Dimensional Systems, SIAM Conference on Applications of Dynamical Systems, May 22-26, 2005, Snowbird, UT.

Minisymposium organizer, Recent Developments in Methods of Solving Delay Differential Equations (DDEs), 2004 SIAM Annual Meeting, July 12-16, 2004, Portland, Oregon.

Symposium organizer, Topics in Operations, National Institute of Standards and Technology, May 13, 2004, Gaithersburg, MD.

Proposal reviewer for the National Science Foundation, and the NIST Advanced Technology Program.

Referee for
      Nonlinear Dynamics,
      Precision Engineering,
      International Journal of Numerical Methods in Engineering,
      International Journal of Nonlinear Mechanics.

Honors

Dahlgren Medal, Georgetown University, 1969.
The Applied Research Award, National Institute of Standards and Technology,
        Dec. 8, 1994 (Group Award)
Department of Commerce Bronze Medal, Dec. 8, 1994 (Group Award)
Knight of the Equestrian Order of the Holy Sepulchre of Jerusalem, inducted
        October, 1999.
Listed in
        1. Who's Who in America
        2. Who's Who in Science and Engineering.
        3. Who's Who in the World.
        4. Who's Who in the East.
        5. 2000 Outstanding Scientists of the 20th Century, International
                Biographical Centre, Cambridge, England.
        6.<DD><EM>Five Hundred Leaders of Influence, National Biographical
                Institute.
        7. Strathmore's Who's Who.

Publications

In Refereed Journals

B. Balachandran and **D. Gilsinn**, Nonlinear Oscillations of Milling, *Journal of Mathematical and Computer Modeling of Dynamical Systems*, 2005.

D. E. Gilsinn and A. V. Ling, Comparative Statistical Analysis of Test Parts Manufactured in Production Environments, *ASME Journal of Manufacturing Science and Engineering*, Vol. 126, 2004, pp. 189-199.

D. E. Gilsinn, G. S. Cheok, D. P. O'Leary, Deconvolving LADAR Images of Bar Codes for Construction Site Object Recognition, *Journal of Automation in Construction*, Vol.13, 2004, pp. 21-35.

Gilsinn, D. E., Davies, M.A., Balachandran, B., Stability of Diamond Turning Processes that use Round Nosed Tools, *ASME Journal of Manufacturing Science and Engineering*, Vol. 123, 2001, 747-748.

D. Gilsinn, H. Bandy and A. Ling ,A spline algorithm for modeling cutting errors on turning centers, *Journal of Intelligent Manufacturing*, Vol 13, 2002, pp.391-401.

D. Gilsinn, Estimating Critical Hopf Bifurcation Parameters for a Second-Order Delay Differential Equation with Application to Machine Tool Chatter, *Nonlinear Dynamics*, Vol 30, 2002, pp. 103-154.

Marsh, E. R., Yantek, D. S., Davies, M. A., **Gilsinn, D. E**., Simulation and Measurement of Chatter in Diamond Turning, *ASME Journal of Manufacturing Science and Engineering*, Vol. 20, May, 1998, 230-235.

Gilsinn, D.E., Constructing Galerkin's Approximations of Invariant Tori Using MACSYMA, *Nonlinear Dynamics*, Vol. 8, 1995, 269-305.

Gilsinn, D.E., Constructing Invariant Tori for Two Weakly Coupled van der Pol Oscillators, *Nonlinear Dynamics*, Vol. 4, 1993, 289-308.

Teague, E.C., Young, R.D., Scire, F, **Gilsinn, D.**, Para-flex Stage for Microtopographic Mapping, *Rev. Sci. Instrum.*, Vol. 59, 1988, pp. 67-73.

Gilsinn, D.E., Asymptotic Approximations of Integral Manifolds, *SIAM J. Appl. Math.*, Vol. 47, 1987, pp. 929-940.

Vorburger, T.V., McLay, M.J., Scire, F.E., **Gilsinn, D.E.**, Giauque, C.H.W., Teague, E.C., Surface Roughness Studies for Wind Tunnel Models Used in High Reynolds Number Testing, *J. Aircraft*, Vol. 23, 1986, pp. 56-61.

Vorburger, T.V., **Gilsinn, D.E.**, Scire, F.E., McLay, M.J., Giauque, C.H.W., Teague, E.C., Optical Measurement of the Roughness of Sinusoidal Surfaces, *Wear*, Vol. 109, 1986, 15-27.

Gilsinn, D.E., Vorburger, T.V., Cao, L, Giauque, C., Scire, F., Teague, E.C., Optical Roughness Measurements of Industrial Surfaces, *Optical Techniques for Industrial Inspection, SPIE*, Vol. 665, 1986, pp. 8-16.

Magrab, E.B., **Gilsinn, D.E.**, Buckling Loads and Natural Frequencies of Drill Bits and Fluted Cutters, *Journ. Of Eng. For Industry*, Vol. 106, 1984, pp. 196-204.

Vorburger, T.V., Teague, E.C., Scire, F.E., McLay, M.J., **Gilsinn, D.E.**, Surface Roughness Studies with DALLAS-Detector Array for Laser Light Angular Scattering, *Journ. of Res. of the Nat. Bur. of Stand.*, Vol. 89, 1984, pp. 3-16.

Gilsinn, D.E., A High Order Generalized Method of Averaging, *SIAM Journ. of Appl. Math.*, Vol. 42,1982, pp. 113-134.

Gilsinn, D.E., The Method of Averaging and Domains of Stability for Integral Manifolds, *SIAM Journ. of Appl. Math.*, Vol. 29, 1975

In Conference Proceedings

D. E. Gilsinn, Discrete Fourier Series Approximation to Periodic Solutions of Autonomous Delay Differential Equations, *Proceedings 5th ASME International Conference on Multibody Systems, Nonlinear Dynamics and Control*, Long Beach, CA, Sept. 24-28, 2005.

L. Deshayes, L. Welsch, A. Donmez, R. Ivester, **D. Gilsinn**, R. Rhorer, E. Whitenton, F. Potra, Smart Machining Systems: issues and research trends, *Proceedings 12th CIRP Life Cycle Engineering Workshop*, Grenoble, France, 2005.

D. E. Gilsinn, M. McClain, C. Witzgall, Using Nonoscillatory Splines to Model Urban Environments, *Geometric Modeling and Computing: Seattle, 2003*, Ed. M. L. Lucian and M. Neamtu, Nashboro Press, Brentwood, 2004, pp. 229-248.

D. E. Gilsinn, Approximating Limit Cycles of a Van der Pol Equation with Delay, *Proceedings of Dynamic Systems & Applications 4*, Morehouse College, Atlanta, 2004, pp. 270-276.

D. E. Gilsinn, G. S. Cheok, A. M. Lytle, Pose of I-beams for Construction Site Automation, *Proceedings 21st International Symposium on Automation and Robotics in Construction*, September 21-25, 2004, Jeju, Korea.

D. E. Gilsinn, G.S. Cheok, and D.P. O'Leary, Reconstructing Images of Bar Codes for Construction Sight Object Recognition, *ISARC2002,19th International Symposium on Automation and Robotics in Construction*, National Institute of Standards and Technology, Gaithersburg, MD.

K. Furlani, D. Latimer, **D. Gilsinn**, A. Lytle, Prototype Implementation of Automated Structural Steel Tracking, *ISARC2002,19th International Symposium on Automation and Robotics in Construction*, September 23-25, 2002, National Institute of Standards and Technology, Gaithersburg, MD.

C. Witzgall, G.S. Cheok, **D. E. Gilsinn**, Terrain Characterization from Ground-Based LADAR, *Preliminary Performance Metrics for Intelligent Systems, Proceedings of PerMIS '03 Workshop*, Ed. E. R. Messina, A. M. Meystel, September 16-18, 2003, National Institute of Standards and Technology, Gaithersburg, MD.

D. E. Gilsinn, J. Lavery, Shape-preserving, Multiscale Fitting of Bivariate Data by Cubic L1 Smoothing Splines, *Approximation Theory X: Wavelets, Splines, and Applications*, Ed. C. K. Chui, L. L. Schumaker, J. Stockler, Vanderbilt University Press, Nashville, TN 2002.

D. E. Gilsinn, J. Lavery, Representation of Natural Terrain by Cubic L1 Splines, *Trends in Approximation Theory*, Ed. K. Kopotun, T. Lyche, M. Neamtu, Vanderbilt University Press, Nashville, TN, 2001.

Stone, W. C., Cheok, G. S., Furlani, K. M., **Gilsinn, D**, Object Identification Using Bar Codes Based on LADAR Intensity, *18th International Symposium on Automation and Robotics in Construction*, 10 - 12 September 2001, Kraków, Poland.

Lavery, J.E., **Gilsinn, D. E.**, Multiresolution Representation of Urban Terrain By L1 Splines, L2 Splines and Piecewise Planar Surfaces, *Proceeding 22nd Army Science Conference in Baltimore, MD*, 11-13 December 2000.

Kramar, J., Amatucci, E., **Gilsinn, D.**, Jun, J., Penzes, W., Scire, F., Teague, E.C., Villarrubia, J., Toward Nanometer Accuracy Measurements, *Metrology, Inspection, and Process Control for Microlithography, XIII, Proceedings of SPIE*, Vol. 3677, pp. 1017-1028,1999.

Kramar, J., Jun, J., Penzes, W., Scire, F., Teague, C., Villarrubia, J., Amatucci, E., **Gilsinn, D.**, The Molecular Measuring Machine, *Proceedings of the 1998 International Conference on Mechatronic Technology*, Nov. 30-Dec. 2, Hsinchu, (ICMT'98), Taiwan Huang, H. P. and Hsu, T. R., eds., 1998, 477-487.

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Gilsinn, D.E., Vorburger, T.V., Scire, F.E., Teague, E.C., McLay, M.J., Surface Texture Characterization by Angular Distributions of Scattered Light, *Review of Progress in Quantitative Nondestructive Evaluation*, Vol. 4B, Ed. D.O. Thompson, D.E. Chimenti,Plenum Pub. Corp., 1985, 779-788.

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Other

D. E. Gilsinn, G. S. Cheok, D. P. O'Leary, Deconvolving LADAR Images of Bar Codes for Construction Site Object Recognition, *NISTIR 7044*, National Institute of Standards and Technology, Gaithersburg, MD, September, 2003.

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H. T. Bandy, M. A. Donmez, **D. E. Gilsinn**, C. S. Han, M. D. Kennedy, A. V. Ling, N. D. Wilkin, K. W. Yee, A Methodology for Compensating Errors Detected by Process-Intermittent Inspection, *NISTIR. 6811*, National Institute of Standards and Technology, Gaithersburg, MD, October 2001.

D.E. Gilsinn, H.T. Bandy, and A.V. Ling, Updating a Turning Center Error Model by Singular Value Decomposition, *NISTIR 6722*, National Institute of Standards and Technology, Gaithersburg, MD, March 2001.

Gilsinn, D. E., Constructing Sibson Elements for a Rectangular Mesh, *NISTIR 6718*, National Institute of Standards and Technology, Gaithersburg, MD, February 200.

Gilsinn, D.E., Bandy, H.T., Ling, A.V., A Spline Algorithm for Modeling Cutting Errors on Turning Centers, *NISTIR 6517*, National Institute of Standards and Technology, Gaithersburg, MD, May 2000.

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Donmez, M.A., Bandy, H.T., Damazo, B.N., **Gilsinn, D.E.**, Hahn, M.H., Harper, K. K., Wilkin, N.D., Wyatt, W.A., Yee, K.W., Final Report on Precision Piston Turning Project Phases I & II, *NISTIR 5466R*, National Institute of Standards and Technology, Gaithersburg, MD, 1994.

Gilsinn, D.E., Donmez, A., Prediction of Geometric-Thermal Machine Tool Errors by Artificial Neural Networks, *NISTIR 5367*, National Institute of Standards and Technology, Gaithersburg, MD 1994.

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Gilsinn, D.E., Hansen, H.J., Xu-Yanshen, Huerta-Garnica, M., Teague, E.C., Comparison of Finite Element and Analytic Calculations of the Resonant Modes and

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ANSI Subcommittee X3J2, T.E. Kurtz, Chairman, American National Standard for Minimal BASIC, *ANSI X3.60 - 1978*, American National Standards Institute, 1978. (**Gilsinn, D.E**. member)

Evans, J.M., Neill, J.T., Albus, J.S., Barbera, A.J., Fife, D.W., Fong, E.N., **Gilsinn, D.E.**, Holberton, F.E., Lucas, B.G., Lyon, G.E., Marron, A.S., Neumann, A.J., Vickers, M.V., Walker, J.C., Standards for Computer Aided Manufacturing, *NBSIR 76-1094(R)*, National Bureau of Standards, Gaithersburg, MD, 1976.

Colner, D.R., **Gilsinn, D.E.**, Fire Service Location - Allocation Models, *NBS Tech Note 774*, U.S. Govt. Printing Office, Wash., D.C., 1973.

Gilsinn, D.E., Domains of Stability for Integral Manifolds (Prel. Rep.), Am. Math. Notices, February, 1970.

In Process

Gilsinn, D. E., Approximating Periodic Solutions for Nonlinear Autonomous Delay Differential Equations, *Nonlinear Dynamics* (tentative).

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13 July 2005